CLAIMS

We claim:

1. A video signal processing device comprising:

a video frame input source;

a first buffer coupled to the video frame input source, the first buffer adapted to receive odd-numbered video lines from the video frame input, producing a first video frame independent of the even-numbered video lines;

a second buffer coupled to the video frame input source, the second buffer adapted to receive even-numbered video lines from the video frame input, producing a second video frame independent of the odd-numbered video lines; and

a field scaler coupled to the first and the second buffers, adapted to produce an output video frame for a video display by selecting between the first video frame and the second video frame.

2. The video signal processing device of claim 1,

wherein the video frame input source deinterlaces video input frames producing odd-numbered video lines and even-numbered video lines.

3. The video signal processing device of claim 1, wherein the field scaler produces the output video frame by alternately selecting the first video frame and the second video frame.

4. The video signal processing device of claim 1,

wherein the field scaler duplicates successive lines of the selected of the first video frame and the second video frame to produce the output video frame.

5. The video signal processing device of claim 1,

wherein the field scaler interpolates between successive lines of the selected of the first video frame and the second video frame to produce the output video frame.

6. The video signal processing device of claim 1, wherein if the field scaler selects the first video frame, a last line of the output video frame is produced by copying a last line of the first video frame.

7. The video signal processing device of claim 1, wherein if the field scaler selects the second video frame, a first line of the output video frame is inserted from a boundary line source.

8. The video signal processing device of claim 7, wherein the boundary line source produces a black line.

9. The video signal processing device of claim 7, wherein the boundary line source produces a line derived from a window background.

10. The video signal processing device of claim 7, wherein the boundary line source produces a line copied from a first line of a previous odd-numbered field.

11. The video signal processing device of claim 1,

wherein the video display has a first size,

wherein the first video frame and the second video frame have a second size, and

wherein the field scaler produces the output video frame by copying the selected of the first video frame and the second video frame to the output video frame unchanged if a ratio between the first size and the second size is below a predetermined value.

12. The video signal processing device of claim 11,

wherein the predetermined value is 1.5.

13. The video signal processing device of claim 11,

wherein the field scaler is adapted to modify a horizontal size of the output video frame.

14. A computer system, comprising:

a processor;

a video signal processing device coupled to the processor, the video signal processing device comprising:

a video frame input source;

a first buffer coupled to the video frame input source, the first buffer adapted to receive odd-numbered video lines from the video frame input, producing a first video frame independent of the even-numbered video lines;

a second buffer coupled to the video frame input source, the second buffer adapted to receive even-numbered video lines from the video frame input, producing a second video frame independent of the odd-numbered video lines; and

a field scaler coupled to the first and the second buffers, adapted to produce an output video frame for a video display by selecting betweem the first video frame and the second video frame; and

a video display coupled to the video signal processing device adapted to display the output video frame.

15. The computer system of claim 14, wherein the field scaler produces the output video frame by alternately selecting the first video frame and the second video frame.

16. The computer system of claim 14,

wherein if the first video frame is empty, the field scaler always selects the second video frame, and

wherein, if the second video frame is empty, the field scaler always selects the first video frame.

17. The computer system of claim 16,

wherein the field scaler produces the output video frame by interlacing new lines created by interpolating between successive lines in the selected of the first video frame and the second video frame.

18. The computer system of claim 16,

wherein the field scaler produces the output video frame by interlacing new lines created by duplicating successive lines in the selected of the first video frame and the second video frame.

19. The computer system of claim 16,

wherein the video display has a first size,

wherein the first video frame and the second video frame have a second size, and

wherein the field scaler produces the output video frame by copying the selected of the first video frame and the second video frame to the output video frame unchanged if a ratio between the first size and the second size is below a predetermined value.

20. A method of converting interlaced video into progressive scan video, the method comprising the steps of:

creating a first progressive scan video frame from odd-numbered lines of an interlaced video frame independent of even-numbered lines of the interlaced video frame; and

creating a second progressive scan video frame from even-numbered lines of an interlaced video frame independent of odd-numbered lines of the interlaced video frame.

21. The method of claim 20, further comprising the steps of:

scaling the first progressive scan video frame to a predetermined display size, independent of the second progressive scan video frame; and

scaling the second progressive scan video frame to the predetermined display size independent of the first progressive scan video frame.

22. The method of claim 21, wherein the step of scaling the first progressive scan video frame and the step of scaling the second progressive scan video frame are bypassed depending on a video display size.

23. The method of claim 21, wherein the step of scaling the first progressive scan video frame and the step of scaling the second progressive scan video frame are bypassed depending on a ratio of a size of the first progressive scan video frame to the video display size.

24. The method of claim 20, the step of scaling the first progressive scan video frame comprises the step of:

duplicating successive lines of the first progressive scan video frame.

25. The method of claim 20, the step of scaling the second progressive scan video frame comprises the step of:

duplicating successive lines of the second progressive scan video frame.

26. The method of claim 20, the step of scaling the first progressive scan video frame comprising the step of:

interpolating between pairs of successive lines of the first progressive scan video frame.

27. The method of claim 20, the step of scaling the second progressive scan video frame comprising the step of:

interpolating between pairs of successive lines of the second progressive scan video frame.

28. The method of claim 20, further comprising the steps of:

copying the first progressive scan video frame into the second progressive scan video frame if the second progressive scan video frame is empty; and

copying the second progressive scan video frame into the first progressive scan video frame if the first progressive scan video frame is empty.